REMARKS

Claim 1 has been amended with similar limitations to dependent claim 6 and that the scan for the two-dimensional plane is just for the two-dimensional plane in a two-dimensional scan format. Similar amendments are made to claim 11. The juxtaposition of the two-dimensional verses three-dimensional scans and use of a two-dimensional scan format rather than a three-dimensional scan format for scanning a plane supports the "just" language (see paragraphs 21 and 22).

Claim 18 has been amended that the two three-dimensional representations are formed separately from each other. Claim 27 has been amended in a similar manner. Separate generation is shown at paragraph 26.

Claims 1, 2, 4, 7-12, 15-22 and 24-29 were rejected pursuant to 35 U.S.C. § 103(a) as unpatentable over Hossack, et al. (U.S. Patent No. 5,873,830) in view of Smith, et al. (U.S. Patent No. 6,241,675). Claims 3, 6, and 14 were rejected pursuant to 35 U.S.C. § 103(a) as unpatentable over Hossack, et al. in view of Smith, et al, and further in view of Robinson, et al. (U.S. Patent No. 6,582,367)

Applicants respectfully request reconsideration of the rejections of claims 1-4, 7-12, 14-22, 24-25, and 27-29, including independent claims 1, 11, 18 and 27.

Independent claim 1 recites scanning just a two-dimensional plane over a first lateral range, the scanning being in a two-dimensional scan format, and scanning a three-dimensional volume over a second lateral range less than the first lateral range.

The Examiner relies on the three-dimensional teaching of Hossack, et al. (col. 16, lines 40-43), noting that scanning a volume would involve scanning along a plane. However, the three-dimensional embodiment of Hossack, et al. do not show scanning just a plane in a two-dimensional scan format.

Smith, et al. is not cited for this limitation. Smith, et al. scan a volume (col. 3, lines 55-58) and merely select data for planes from the volume scan (col. 5, lines 3-35). Smith, et al. do not show scanning just a plane in a two-dimensional scan format.

Claim 1 also includes the limitations from claim 6. Robinson, et al. is cited for these limitations. Robinson, et al. teach B-mode and Doppler, including a 2D Doppler with harmonic 3D. However, Robinson, et al. do not disclose the combination of 2D B-mode and 3D Doppler.

Claim 1 also recites the two-dimensional image displayed as a plane intersecting the three-dimensional representation. Hossack, et al. is relied on for a 3D/3D combination, so do not create a display of a plane intersecting a 3D representation. Smith, et al. show slice views by themselves (col. 6, lines 8-15; Figures 1D-1G). Hossack, et al. and Smith, et al. do not disclose displaying the two-dimensional image as a plane intersecting the three-dimensional representation.

Independent claim 11 recites similar limitations as claim 1, so is allowable for the same reasons.

Dependent claims 2-4, 6-10, 12, and 14-17 depend from claims 1 and 11, so are allowable for the same reasons. Further limitations patentably distinguish from the cited references.

Claim 4 recites a perpendicular lateral range for the 3D volume as compared to the 2D plane. Hossack, et al. provide different lateral ranges for a same dimensional scan, such as a 2D ROI having less lateral range than the 2D scan plane. Hossack, et al. do not disclose different ranges for different scan types (2D and 3D).

Claim 14 recites 2D B-mode and 3D Doppler, so is allowable for the associated reason discussed above for claim 1.

Claim 16 recites scan an outer region with a higher resolution than the 3D volume. Hossack, et al. provide for higher resolution for the ROI than the outer 2D scan.

Independent claim 18 recites three-dimensional formed separately from the first three-dimensional representation. Hossack, et al. form a single image with the ROI of the image being scanned differently (col. 2, lines 31-34; Figure 5; and col. 13, lines 20-35). The ROI information and outer scan information are composited together to generate an image (col. 13, lines 20-35; and Figure 5). The three-dimensional volume teaching merely mentions that

the two-dimensional methods could be used (col. 16, lines 40-43). Hossack, et al. provide for a combination image, not separate formation of three-dimensional representations.

Smith, et al. provide for 3D CF, PW, CW, or M-mode images (col. 4, lines 18-28 and 46-65). Smith, et al. do not provide for separate 3D representations of a volume and sub-volume.

Claim 18 also recites generating two 3D representations. None of the cited references show 3D representations for both the volume and sub-volume. Hossack, et al. composite the data together and generate an image.

Independent claim 27 is allowable for the same reasons as claim 18.

Dependent claims 19-16 and 28-29 depend form claims 18 and 27, so are allowable for the same reasons. Further limitations patentably distinguish from the cited references.

CONCLUSION

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof.

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Date: December 23, 2009